6. The semiconductor structure of claim 1, wherein said accommodating buffer layer comprises a material selected from the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, perovskite oxides such as alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, and gadolinium oxide.

a1

8. The semiconductor structure of claim 1, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

a2

9. The semiconductor structure of claim 1, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

22. The semiconductor structure of claim 14, wherein said template layer comprises a capping layer formed of about 1-10 monolayers of a material selected from the group consisting of M-N and M-O-N, wherein M is selected from the group consisting of Zr, Hf, Sr, and Ba and N is selected from the group consisting of As, P, Ga, Al, and In.

a3

26. The semiconductor structure of claim 24, wherein said additional monocrystalline oxygen-doped buffer layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

a4

33. The process of claim 31, wherein said monocrystalline material layer comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

a5

34. The process of claim 31, wherein said monocrystalline material layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

35. The process of claim 30, wherein said accommodating buffer layer comprises a material selected from the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, perovskite oxides such as alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, and gadolinium oxide.

37. The process of claim 30, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

a6

38. The process of claim 30, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

a7

54. The process of claim 52, wherein said additional monocrystalline oxygen-doped buffer layer comprises a material selected from the group consisting of gallium

a7 arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

a8

62. The process of claim 60, wherein said first compound semiconductor material comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

a9

79. The process of claim 77, wherein said second compound semiconductor material comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

a10

89. The semiconductor device structure of claim 87, wherein said monocrystalline material layer comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

90. The semiconductor device structure of claim 87, wherein said monocrystalline material layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

91. The semiconductor device structure of claim 87, wherein said monocrystalline accommodating buffer layer comprises a material selected from at least the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, perovskite oxides such

a10 as alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, and gadolinium oxide.

93. The semiconductor device structure of claim 87, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds.

a11

94. The semiconductor device structure of claim 87, wherein said monocrystalline oxygen-doped material layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.

111. The semiconductor device structure of claim 109, wherein said additional oxygen-doped buffer layer comprises a material selected from the group consisting of gallium arsenide, gallium indium arsenide, gallium aluminum arsenide, indium phosphide, cadmium sulfide, cadmium mercury telluride, zinc selenide, zinc sulfur selenide, lead selenide, lead telluride, and lead sulfide selenide.--

a12

REMARKS

The claims have been amended to add more conventional Markush-type language and thus address the rejection under 35 U.S.C. 112, second paragraph.

The rejection of the claims as obvious over the combination of Ramdani and Matsuda is traversed.

The present application was filed on July 10, 2001. Accordingly, the provisions of 35 U.S.C. 103(c) apply. Ramdani thus is not prior art against the present application because Ramdani and the present application were, at the time the